The Training School Bulletin

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M-R And Dilemmas in Psychology
Cromwell

Validity of the PPVT
Tobias-Gorelick

Research at Johnstone Center
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Clausen

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"for the practicing professions concerned with mental retardation"

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3. Book reviews and news notes.
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Editorial:

Costs of Services

ONE of the great problems faced by parents of mentally retarded children is the cost of treatment and training, particularly of services rendered by private sources, be they established for profit or on a non-profit basis.

Undoubtedly, a good deal of this comes from the habit of dumping a great number of children with handicaps related to mental retardation into the hopper with those whose primary concern is with mental retardation. The most common of these include emotional disturbance, seizures, hearing problems and sight handicaps. Unfortunately the specialty schools for these defects refuse admission to many children because they are retarded.

As a result, any person, clinic, school, or institution organized to service the mentally retarded soon finds a variety of enrollees in its program, many of whom require sizeable services in areas other than retardation. Professional workers are not ready to rush into such a situation to help this multiply-handicapped child so that the costs of obtaining them are inclined to be high. Often the final set up lacks offerings that would be available in the above mentioned specialty schools, but the parent is happy to have the child receiving assistance for both handicaps at the same time. Often the total cost to him is less than both services would be if he availed himself of both under separate contracts.

In a sense, the interdisciplinary coordination in the mental retardation setting may well be the more effective program, but it does keep the cost to the parent ever rising.

W. J.

Mental Retardation and Some Current Dilemmas in the Profession of Psychology[1]

Rue L. Cromwell

My topic for this evening concerns primarily the activities of the newly formed ad hoc Committee on Mental Retardation of the American Psychological Association (APA).

Although the APA Committee was appointed during this past year, it does have a bit of history behind it. Division 12, the Division of Clinical Psychology, of APA started a committee on mental retardation which met on August 30, 1958 at the APA convention. This committee was headed by William Sloan, present editor of the *American Journal of Mental Deficiency.* Robert Cussel was active as secretary. Luther Long and I were also members. At this meeting a large number of people crowded into the room from other areas as well as the area of clinical psychology. It became quite evident that other areas, such as school, counseling, and developmental psychology were involved and some of them also had mental retardation committees. So, out of this meeting came the suggestion for an APA-wide committee on mental retardation to coordinate these many elements. On the basis of the 1959 report of this former committee, the Board of Professional Affairs appointed the present committee. The members of the Committee are Sidney Bijou, University of Washington; Rick Heber, University of Wisconsin; William Hurder, Southern Regional Education Board; Frances A. Mullen, Chicago Public Schools; and myself. This committee when appointed was given a title, as you know, and that was it. We were not told what our purpose was or what assignment we had. We were merely told that we were the new members of the ad hoc Committee. We had to decide for ourselves what we were for.

This put me in the position of the drunk at the APA. (Now there is a thought here to begin with, but I am not sure what it is.) This fellow marched into a very crowded elevator. He got inside the door, the door closed behind him, and he could not turn around. His coat tail was caught in the door. As he was going up and all these people were facing him, he said, "Well, I guess all of you wonder why I called this meeting." This is how I felt when I was made chairman of this group.

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[1] *A speech given at the Conference on Psychological Services in the Habilitation of the Mentally Retarded, The Training School at Vineland, New Jersey, September 25, 1961.*

The first step we took was to make ourselves known. We asked to have notices in the *American Psychologist,* the APA Division Newsletters, the *AAMD Project News,* the *American Journal of Mental Deficiency,* and the communications of CEC and NARC. This let people know of the existence of the new committee and its readiness to receive issues which were of concern to psychologists serving the area of mental retardation. From these fairly short news notes came a flock of letters from all parts of the country. This flock of letters attested quite readily to the need for such a committee.

Getting the proceedings started from this point was fairly simple. These letters were arranged into an agenda of items and a memo was sent to the committee members. They discussed and ranked the items. Psychologists, you know, like to rank order things. In this way the more important items were listed first on the agenda.

Since there was not a great representation of people on the committee with background in residential facilities, my next step was to appoint an advisory group which was heavily loaded with institution people. This gave a much better basis for answering some of the questions and issues which were specifically pertinent to residential facilities.

The items of the committee's agenda may be discussed under these major headings. The item which was ranked of greatest importance is the need for an improved professional attitude toward mental retardation. Everyone on the committee to some degree was concerned with the fact that mental retardation is still looked upon as a second class area of interest within the profession of psychology, and there was felt primarily a need to do something about this. The question is: What would one do? Here I have come to believe that the behavior of psychologists is more predictable than the behavior of people. (This is something to ponder over). The psychologists on the committee, although ranking this issue most important, decided to not deal with it directly. They preferred not to deal with the symptoms but rather to treat the underlying dynamics and causes which gave rise to this less-than-favorable attitude which still exists toward the area of mental retardation. The committee therefore proceeded to the other topics.

The next item is, I am sure, a controversial one. The committee received a number of letters from various sources to the effect that some of the government monies used for research in the area of mental retardation are mishandled. For example, criticisms are made that there is approval and support of large research projects which are poorly conceived, poorly designed—so that one could not possibly draw any sound conclusions from the data collected after the project is over. On the other hand, there are criticisms that a number of proposal topics are turned down as irrelevant when these same proposal topics have been judged as highly relevant in other reports, such as the report of the White House Conference on Children and Youth. Then, there is the question raised as to the qualifications of

those who pass judgment on the research proposals. A more specific criticism concerned a government-supported two week seminar for developing ideas and research designs in mental retardation with a minority of the participants being ones who actually do research in mental retardation. How is a committee of APA with its particular narrow jurisdiction going to react to these various types of criticisms? Again, the behavior of psychologists, at least the ones on this committee, might be what one would predict. The first concern was to get more substantial data. In this way it could be decided to what extent the criticisms are justified. One always expects a degree of defensiveness and complaint from a person whose research project is turned down or who was not invited to a conference he hoped to attend. However, this alone does not explain why the critiscisms have been directed almost totally toward agencies concerned with educational and child projects. After getting the data, the committee will then decide in what way it should act. The opportunity for government research support seems invaluable in restoring vitality in the area of mental retardation, but its prestige will certainly not be helped if individuals inside and outside this area view much of the funds as going down the drain.

Another facet of this problem concerns the criticisms directed toward studies of molar problems, such as testing the effectiveness of certain classroom procedures. It is readily recognized that these are of a pioneering nature, as compared to more easily controlled laboratory research projects. Thus, it was suggested that a report be prepared to collate and tie together the research pitfalls, research failures, and research difficulties which are met in these molar types of investigations. If such a project does get underway, it should be highly useful in making some inroads toward improving quality of research in these areas.

The next topic, and the one with the greatest number of facets, concerns the training of psychologists with increased knowledge in mental retardation. First, there was a discussion of the need for more highly developed short term training institutes and training conferences. This would include the very thing which is being developed here at Vineland with this Conference. The need for these short term, two or three-day conferences, refresher courses, introductory courses, and advanced training courses in the diagnosis, management, and treatment of mental retardation is prominently felt. The committee went on record to do all it could to encourage such efforts, such as the one being developed here, and to hope that such training institutes can become permanent ones affording a nationwide rather than local service. I have recently found that state administrators—the state commissioners of mental health—want to send their professional personnel to these national refresher and training courses, as an economical way to handle training problems and get increased sophistication in problems such as mental retardation.

The second item concerning training is the development of post-doctoral residency programs. Many individuals, after going through a doctoral program in psychology which omitted or slighted mental retardation training, find themselves either working in or interested in going into the area of mental retardation. Many such individuals are interested in post-doctoral work. The notion of encouraging formal postdoctoral residency programs where both clinical and academic facilities are available was discussed. In this connection, formal residency diplomas and NIMH stipend support was also discussed.

Another item concerning training is the development of joint inter-disciplinary conferences on specific topics which are currently in focus in the area of mental retardation. For example, this year there was interest in planning a joint conference with social work on the problems involved in counselling parents of the mentally retarded. As chairman of the committee, I received several letters from around the country pointing to the need for more attention to this area. For example, as Dr. George Baroff has mentioned, training of many psychologists in human genetics, a vital part of counselling with parents of the mentally retarded, is inadequate. Others have pointed to the grossly inadequate knowledge of some clinical, counseling, and school psychologists in local and state resources for mentally retarded children.

Other committee issues concerning training are of a simpler variety. One concerns the transmitting through the communication media of mental retardation the facts about what stipends are available for university faculty to take a year off to study in a residential facility for the mentally retarded. Another item concerns the interest of the Veterans Administration in mental retardation. Why are they interested? There are a number of war orphans which have come within the realm of responsibility of the Veterans Administration, some of these children being mentally retarded. Also, the VA is taking a new look at their internship program and there is some interest in reaching out to develop combined internships with residential and clinical facilities for the mentally retarded in order to broaden the experience in their internships. The committee will be communicating with the VA to encourage and advance such projects.

Still another facet of the training picture has to do with the accreditation by the APA of intern facilities. It seems that there has been some miscommunication along this line. A number of people have felt that mental retardation was getting a short deal, that facilities such as mental health clinics and psychiatric hospitals were being approved in preference to facilities and agencies in mental retardation as if a wide exposure to behavior disorders was not possible in a facility for retarded. Although there has been some emotional reaction over this point, the evidence which we have at present indicates no prejudicial judgment has been made against accrediting internship facilities in mental retardation. The main problem is

the need for qualified personnel in the internship training center in order to meet the minimum standards. Thus we come back to the training problem. We need more people in various residential facilities to set up such internship programs. One difficulty has been that when there are qualified personnel in mental retardation they do not stay in one place long enough to allow the accreditation to take place.

This problem of lack of internships in mental retardation has continually been a problem in the NIMH Training Program in Mental Deficiency at Peabody College. Naturally, students in the program are assigned internships in mental deficiency. A certain set of minimal standards have been required: an on-going formalized internship program, a doctoral level clinical psychologist for clinical supervision, on-going research program, and either a research psychologist in residence at the institution or a prominent researcher available from a local university for close research consultancy. With this kind of minimal standard setup the internships which Peabody selects typically do not meet APA standards. What is more, those which APA approves typically do not come up to these minimal Peabody standards. This type of dilemma illustrates not only the need for more standardly accredited intern programs in mental deficiency; it also illustrates the fact that those clinical students going through the accredited intern programs receive little or no training in mental retardation.

Finally, with regard to training, the committee is concerned with planning symposia and programs for the APA Convention. Such symposia as these hopefully will be developed for next year's convention or the year thereafter: parent counseling (again); social and emotional competence in the mentally retarded; the interpretation and utilization of test results, especially as regards communication to parents and other professional groups; and emotional and behavioral problems in residential facilities of the mentally retarded.

The next major agenda topic concerns whether psychology as a profession should take responsibility for the standards and accrediting of psychological services in mental retardation, both in residential facilities and in day care and clinic facilities. The APA has taken many strides forward in the standards and accrediting of training. To a very great degree psychology as a profession has not taken the responsibility, as medicine has, in developing standards and accreditation for services to the individual client or patient. What work has been done by the American Board of Psychological Services (ABPS) has apparently not received adequate support. The advisory group to the committee had the following reactions: (a) an interest and approval in standards-setting for services, (b) a tendency to be cautious and deliberate about establishing a formal accrediting procedure, (c) mixed reactions as to the scope of such accrediting, and (d) mixed reactions as to whether it should be done in conjunction with other agencies or disciplines. From the meeting of the advisory group it was

apparent that intern training accreditation was viewed as more important than services accreditation, although some psychologists are intensely interested in it. There was some negative sentiment toward the medical profession for electing to approve psychological services along with medical and other services in institutions; however, there was the recognition that psychology can not complain too loudly if it is unwilling to take over this responsibility itself. The major decision on the topic was to wait until the AAMD Project has finished its report on minimal standards in state school facilities and to look then at the topic in the light of what psychology can do cooperatively with AAMD in this area. Dr. Edward Stull, working with the AAMD Project committee, will be in close communication with the APA committee.

The next topic concerns the need for a clearing house for test development in mental retardation. Such a clearing house could coordinate the development of psychological instruments which need nationwide standardization. Such a problem might be handled by the forthcoming federal Commission on Mental Retardation or by some other federal agency.

Other items of the committee are of a more routine nature. For one thing, a decision was made to set up within the committee the liason relationships with the National Association for Retarded Children; the American Association on Mental Deficiency, and the Council for Exceptional Children. Second, there was consideration of suggestions for an interest group in mental retardation in APA. The consensus of the committee was that people interested in this should be encouraged to affiliate with the Psychology Section of AAMD. This could be a useful and more active group than it now is. Third, there is the growing interest in research and revision of the Heber classification manuel. The committee will refer communications concerning it to the AAMD Project where the machinery is set up to handle these criticisms, suggestions for change, and research ideas. This manual was published with the idea that it was not to become a static system but was to be a stimulus for research and change toward a more refined diagnostic nomenclature in the area of mental retardation. From the interest which has been aroused, it seems already to have accomplished that goal. Fourth, journals for mental retardation were discussed. The recent increased standards and rejection rate of the *American Journal of Mental Deficiency* was discussed. The need for quality manuscripts there seems to be more from other professions than from psychology. One child developmental journal recently has considered a policy of rejecting all future articles on mental retardation. The committee decided to communicate with this journal and to ask the editor to reconsider this decision. This type of policy among the various child journals would be an alarming thing if there developed a pattern of partitioning mental retardation research from general child psychology research.

What I have just presented constitutes the major topics on which the committee is beginning to work. In the remainder of my time this evening I would like to make some comments about the profession of clinical psychology, which are intended to give some broad context for viewing the activities of the committee. These comments arise largely from recent work with this and other committees and from discussion with colleagues about the future of clinical psychology.

The first observation is that clinical psychology is more concerned with keeping its professional house clean than it is with responding to the public need for services. This is actually a long standing tradition of which we rightfully have been proud. Historically, there has always been strong sentiment in psychology against applying principles or rendering services which had not met the rigid tests of scientific validity. The Boulder Conference decisions of 1946 seemed only to formalize this attitude by maintaining that the clinical psychologist was to be trained primarily as a scientist rather than as a practitioner. The need for a psychologist to do research to advance the state of knowledge while at the same time rendering services was well recognized. The steps taken to preserve the standards in the profession has been consistent with this attitude of maintaining services of scientific certitude. The post-war emphasis on developing a doctoral level profession (strictly so in the VA), the development of the ethics code, the organization of ABEPP, the accrediting of clinical training programs, and finally the accrediting of internship facilities are a few examples of this drive for quality.

Recently, however, some other things have been happening outside the house. The public is beginning to get a picture of what the clinical psychologist is. At the same time, the increasing demand for mental health services—not only in mental retardation—is such that not enough professional personnel of *all* the mental health professions combined can be trained to meet the public need on an individual basis.

This drive for quality—and the inevitable restriction and close scrutiny of services—together with the increasing public demand for services from the psychologist seems to be causing a squeeze which, I think, will not allow clinical psychology to remain in its somewhat static state. The squeeze seems to show itself in several ways. Great numbers of clinical service positions go unfilled, especially if they involve only diagnostic work. The use of university academic appointments, promise of time for research, or an opportunity for consulting or psychotherapy practice are typically necessary to attract applicants. Positions of a strictly service nature are often viewed as lacking in morale and status and as having too much uninteresting routine work. The standard mental health team, the psychiatrist, social worker, and clinical psychologist, works very well in some cases. In other cases it turns out to be an expensive, unproductive approach. Some-

times the team members become more concerned with their own professional roles (e.g., what they should omit from their report in deference to the declared area of another profession) than with the patients they are serving. The recent emphasis in school psychology seems definitely to delete routine testing services in favor of consultation and other services. This will probably cause teachers to want more test information than ever.

What is happening to fill the gap? In some neuropsychiatric settings, Gray Ladies and other volunteer workers are being trained to give basic intelligence tests and personality inventories. On occasion, special educators and regular school teachers are being taught to do individual intelligence testing. Many agencies still look upon the internship as an inexpensive way to absorb the service load. Members of the profession of psychiatry have talked of starting a technician group to collect intelligence and projective test results. The VA is reaching out to combine internships with other agencies in order to fill its internship ranks. A plea is being made by at least one segment of APA that not enough post-war psychologists are being trained in child clinical work, while another segment is interested in training, attracting, and even, indenturing young doctoral graduates into work with adults. Our committee is concerned greatly with training and attracting psychologists to fill the vacuum in mental retardation, but others point out with equal justification that the area of the gifted child is the one being ignored. Everyone seems to be reaching into the professional stockpile and coming out with little more than the hand of another reaching colleague.

It would seem that something has to give. For the supply and demand to keep this unstable balance would seem unlikely. Actually, the greatest single advancement of the profession of clinical psychology came when psychiatry, pressing for high standards and professionalization, was caught unable to meet the demands for services in World War II. This circumstance propelled clinical psychology to a peer professi status in the mental health field, the problems of which are still felt as psychiatry is forced gradually to recognize its contributing partner. What will clinical psychology now do in a situation similar to what psychiatry was in at that time? Obviously, your guess is as good as mine. That the public demands will not wait for the tidy development of highly professionalized individual services is a lesson which clinical psychology should have learned from its own ontogeny. On the other hand, the continued reverence of psychologists for procedures and approaches of firm scientific validity practiced by well-trained psychologists will not likely change. It would seem therefore that clinical psychology will have to perform some major changes in its service approach or take a backseat to become just a model service profession which is not really intended to meet the public need.

One can only offer conjectures about the outcomes. If clinical psychology chooses to stand pat and not contemplate change, it would seem

that another professional group would assume the psychological testing services, whether this be special education, a technician group under psychiatry and/or a combination of other groups. And well they should. If so, however, the standards for such service and for test development might soon be outside the profession of psychology. This is a possibility even though psychological testing has been one of the unique contributions of the profession of psychology.

Another possibility, discussed by Kubie and others, is a doctorate in mental health. It seems reasonable that one individual could be trained with the basic skills of the psychiatric nurse, with the limited license to prescribe drugs such as is true of the dentist in his work, with the psychodiagnostic, Psychotherapeutic, consultative skills of both the psychiatrist and clinical psychologis, and with the group and community resource training of the psychiatric social worker. Such would not be the research-oriented doctorate of philosophy, but rather a practitioner. Since rational judgment often defers to professional identification, and each profession will be defensive about what it might have to give up, such a profession would seem a long way off. The profession of "educateur", combining the skills of the school teacher and the mental health clinician on a non-doctoral level will probably not have so many obstacles.

Another possibility, occasionally discussed, is the development of a technician level group for the profession of clinical psychology. Some routine services are such that even an M.A. is an uneconomical terminal point for the psychometric work. A technician at the baccalaureate or subbaccalaureate level could play an important role in clinical data collection and learn the techniques of reporting the data to the clinical psychologist. By supervising this routine data collection, the clinical psychologist would have more time free to make the final diagnnostic decisions and carry out the treatment and management of the client, including the basic interpersonal relationship with him. Dr. Delton Beier referred to such a hypothetical group as "orthometricians", since this does not conflict with any present day terminology. If maintained so that such a group would perform quality work under the supervision of a doctoral clinical psychologist, the potential for services by each clinical psychologist would be greatly expanded. But some other profession may get there first.

Making conjectures is fun; sometimes they are wrong, but they certainly give one something to think about.

The Validity of the Peabody Picture Vocabulary Test As A Measure of Intelligence of Retarded Adults[1]

Jack Tobias and Jack Gorelick

THE recently introduced Peabody Picture Vocabulary Test, PPVT (Dunn, 1959) was designed to measure "hearing vocabulary" as an important factor in "verbal intelligence". The author assumed that because the vocabulary sections of both the Stanford-Binet and the WISC are more highly correlated with the IQ than any other subtest in either scale, a relatively pure measure of vocabulary that can be administered and scored in a fraction of the time required by other individual clinical instruments would be of practical utility. The PPVT is purported to offer other advantages in administration to cerebral-palsied subjects, the retarded, and to those with severe speech handicaps. Because the testee can meet the full requirements of the test by mere pointing, physical and emotional disabilities that interfere with fuller communication are eliminated as sources of error in the appraisal of intelligence.

Two validity studies of the PPVT (Dunn and Hottel, 1961; Dunn and Brooks, 1960) for "trainable" and "educable" retarded children concluded that the instrument was as adequate for the retarded as it was for normal subjects. However, neither the standardization population nor the reported studies examined the relevance of the PPVT with an adult population. Although the normative figures provide for a maximum age of 18 years, the Manual warns that "Intelligence quotients towards the extremes of age distribution are irregular because no smoothing was made in score distribution" (Dunn, 1959).

Purpose

This study was undertaken to examine the validity of the PPVT for retarded adults residing in the community. The relationship between vocabulary scores and other measures of intelligence was investigated, as was

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[1] *This study was partially supported by grants from the Office of Vocational Rehabilitation for Special Project #568, "Development of Optimum Vocational Potential of Mentally Retarded Adults in a Sheltered Workship Program" and from the National Institute for Mental Health for Project #ON-294, "Occupation Center for Mentally Retarded Young Adults".*

the value of the PPVT in predicting reading achievement at different levels of retardation. It was anticipated that the study could also help to establish whether the PPVT could safely be substituted as a clinical test for more time-consuming scales.

Procedure

The Association for the Help of Retarded Children in New York City maintains two centers for retarded adults who reside with their families — the Sheltered Workshop and Training Center and the Occupation Day Center. Whereas the latter facility is intended for the more severely retarded adult, the Sheltered Workshop accepts clients at all levels of retardation. The minimum age requirement of both Centers is 17 and the clients' ages range to the low thirties .The median age of both groups is about 23 years.

Individual psychological test batteries are administered to all clients shortly after they are admitted to the programs. The WAIS is the standard instrument for those with IQ's above 43. The Revised Stanford-Binet is used for trainees who fall below the standardization level of the WAIS. Both tests are generally used for trainees who fall in the 40 to 50 IQ range.

The PPVT was administered to the entire current population at both Centers and a series of product-moment correlations were computed for vocabulary scores and other measures of intelligence.

Results

1. *Relationship of PPVT to WAIS.* Scores on the WAIS and PPVT were available for 107 subjects ranging in WAIS Full Scale IQ's from 43 to 81.

The results enumerated in Table 1 indicate a significant relationship between the two scales that is manifested more strongly in the Verbal and Full Scale scores than with the Performance Section of the WAIS. However, the IQ's derived from the PPVT for a retarded adult population are systematically higher than WAIS IQs. The mean difference between IQs is 6.3 points, which is statistically significant at the .01 level of confidence.

Table 1

Correlations between WAIS and PPVT
N=107

Tests	
PPVT raw score vs. WAIS Verbal	.66
PPVT raw score vs. WAIS Performance	.42
PPVT raw score vs. WAIS Full Scale IQ	.64
PPVT IQ vs. WAIS IQ	.61

*All correlations significant at .01 level

Table 2

Mean Differences of Scores on PPVT and WAIS
N=107

Tests	Correlation Coefficient*
Mean WAIS Full Scale IQ	59.6
Standard Deviation WAIS IQ	9.8
Mean PPVT IQ	65.9
Standard Deviation PPVT IQ	11.6
Difference between Means	6.3
t-ratio of significance of difference between means of PPVT and WAIS (Significant at .001 level for confidence)	6.85

The data in Table 3 indicate the discrepancies beween the WAIS and PPVT IQs.

More than half the group, 61%, had IQ scores on both tests that showed less than 10 points of discrepancy. Thirty-four percent of the total group scored 11 or more points higher on the PPVT than they did on the Full Scale WAIS. Only 4% had lower PPVT than WAIS IQs of equivalent magnitude. It is evident that if the WAIS is used as the criterion measurement, the PPVT generally over-estimates the IQ of non-institutionalized retarded adults.

2. *Relationship of PPVT to Stanford-Binet.* A similar analysis was computed for 69 adults at "trainable" levels of retardation. Their IQs, based on S-B scores, ranged from 17 to 52 with a mean of 36.4. Most of this group fell below testable levels on the WAIS. The Manual for the PPVT provides tables for the conversion of raw scores into IQ, but does not extend them low enough to include a severely retarded population. The minimum IQ provided by the Manual for the oldest age group in the standardization population is 55. A comparison of IQs was, therefore, impossible and a correlation between PPVT raw scores and S-B IQs was computed. An additional correlation was made between MAs on the two tests and the results are summarized in Table 4.

Table 3

Deviation between WAIS and PPVT IQs
N=106

IQ Points	PPVT greater than WAIS	PPVT less than WAIS	Total
0—5	20	12	32
6—10	25	8	33
11—15	14	3	17
16—20	14	2	16
21+	8	0	8
Totals	81	25	106

Table 4

Relationship of PPVT and S-B for Retarded Adults at "Trainable" Levels (N=69)

Mean S-B MA	5-4	
Standard Deviation S-B MA	1-1	
Mean PPVT MA	7-2	
Standard Deviation PPVT MA	2-4	
Difference between Mean MAs	22	months
Product-Moment Correlation S-B MA vs. PPVT MA	.69	
Significance of Difference Between Means. t-ratio	5.8	
Statistically significant at greater than .001		

The data indicate that there is a correspondence between the two tests for adults at the lower levels of retardation. The relationship between PPVT and S-B is almost identical to that found between PPVT and WAIS, for a somewhat less retarded population. However, the same systematic deviation in scores is evident and it appears that the PPVT fairly consistently over-rates retarded adults when either the WAIS or S-B is used as the criterion. The mean difference in MAs was found to be 22 months which is statistically significant at the .001 level. Table 5 summarizes the extent of the deviations between test results in terms of Mental Age. It should be pointed out that the test authors "believe the PPVT and Binet overlap in the function(s) they measure but do not correspond perfectly" (Dunn, 1959).

An analysis of these figures shows that the PPVT identifies only 44% of the testees within one year of their S-B MAs. Thirty-eight percent of the cases were over-estimated by more than two years.

Table 5

Deviation between S-B MA and PPVT MA (N=68)

Months	PPVT greater than S-B	PPVT less than S-B	Total
0-6	12	7	19
7-12	8	3	11
13-18	4	0	4
19-24	7	1	8
25-30	6	0	6
31-36	3	0	3
37-42	4	0	4
43-48	8	0	8
49+	5	0	5
Total			68

Dunn and Hottel (1961) supply analogous data for 220 trainable retarded children who were compared on S-B and PPVT scores. The mean CA of the children's group was 11-6 and the mean MA on the S-B was 4-8. These children had a mean MA on the PPVT of 4-11, only 3 months greater than they scored on the S-B. Dunn and Brooks (1960) report equivalent findings in their investigation of educable mentally retarded children. They found a difference between PPVT and S-B MAs of only 4 months with this less retarded group.

The adults investigated in the current study are roughly equivalent in IQ to both groups of children, although their mean CA is approximately double. It seems significant that the initially slight discrepancy reported between vocabulary and S-B scores increases extensively with continued maturation in the community.

Table 6

Discrepancy in Scores at Different Age Levels

	Mean CA	Mean PPVT MA	Mean S-B MA	Diff. Months
Trainable Children*	11-6	4-11	4-8	3
Educable Children**	12-9	8-1	8-5	-4
Trainable Adults	23-0	7-2	5-4	22

*Data from Dunn and Hottel (1961)
**Dunn and Brooks (1960)

Actual proof of this phenomenon would require the testing and analysis of results from an institutionalized population equated for IQ and age with the non-institutionalized group. However, it seems legitimate to hypothesize that there is a continued and more extended growth in vocabulary for the retardate in the community, than there is in other factors measured by general intelligence tests.

3. *The PPVT and the Porteus Mazes.* A previous study conducted at the Workshop (Tobias and Gorelick, 1961) had tried to determine the effectiveness of the Porteus Mazes in predicting the vocational adaptation of retarded adults. The results indicated that this presumed measure of "planfullness" was no better than other psychometric devices in predicting vocational success in a sheltered environment. It was, however, very significantly related to success in competitive employment. A product-moment correlation between raw scores on the PPVT and the Porteus Mazes, Arthur Adaptation, (Arthur, 1947) for 108 subjects revealed a coefficient of only .088, a result that demonstrates no relation between the two tests. Although both tests provide tables that permit conversion of raw scores into MAs, they are obviously measuring independent factors. If, as the data indicate, "planfullness" as measured by the Maze Test is highly related to success in competitive employment, but is not related to voca-

bulary, it may be deduced that there is no relation between vocabulary and employability for retarded adults.

4. *The PPVT and Achievement in Reading.* A common practice in establishing the validity of intelligence tests for children is to relate IQ scores to academic achievement and to determine whether the IQ can predict success in school. Since the subjects of this study were beyond school age, postdiction rather than prediction of reading achievement was investigated. The Wide-Range Achievement Test (1946) was used to measure reading grade equivalents and these results were correlated with PPVT raw scores as well as with WAIS Full Scale IQs. Only those trainees who fell within scorable levels on the WAIS were included, thus eliminating most of the non-educable group who may never have had formal instruction in reading. Table 7 summarizes and compares the findings with both tests.

Table 7

Correlations with Reading Achievement

	PPVT	WAIS
N	91	144
Mean Reading Grade	3.7	3.9
Standard Deviation Reading Grade	2.1	2.2
Correlation between Reading and WAIS IQ	.40*	
Correlation between Reading and PPVT raw score	.52*	

*Significant at .01 level

Both the WAIS and the PPVT scores are significantly related to reading achievement, but the PPVT seems to be a slightly superior instrument in estimating reading skills of retarded adults. Dunn's study (1961) had compared the S-B with PPVT on this criterion with a population of "trainable" retarded children. He used an admittedly crude teacher-rating scale and found a .39 correlation coefficient between PPVT MAs and teacher ratings of reading skill. The S-B correlated at .51 with the same criterion.

Summary

A study of the vocabulary of retarded adults was made using the PPVT with an age group older than the standardization population. It was found that, although there is a significant relationship between the PPVT and the most commonly used individual intelligence tests, the PPVT tends systematically to over-rate both the MA and the IQ of retarded adults. It is hypothesized that vocabulary skills of retardates may continue to mature beyond that of other intellectual factors measured by existing instruments. This phenomenon may be affected by residence in the com-

munity and may not apply to an institutionalized group. The PPVT is more closely related to the reading achievement of adults at "educable" levels than the WAIS, but there is no significant correlation between vocabulary and the measure of "planfullness" provided by the Porteus Mazes.

References

Arthur, Grace. *A Point Scale of Performance Tests (Revised Form II) Manual.* New York: Psychological Corporation, 1947.

Dunn, L. M. *Peabody Picture Vocabulary Test Manual.* Minneapolis, Minn.: American Guidance Service, 1959.

Dunn, L. M. and Brooks, Sayde T. "Peabody Picture Vocabulary Test Performance of Educable Mentally Retarded Children," Training School Bull., 1960, 57: 35-40.

Dunn, L. M. and Hottel, J. V. "Peabody Picture Vocabulary Test Performance of Trainable Mentally Retarded Children", A.J.M.D., 1961, 65: 448-452.

Jastak, J. and Bijou, S. *Wide Range Achievement Test.* New York: Psychological Corporation, 1944.

Tobias, J. and Gorelick, J. "The Porteus Maze Test and the Appraisal of Mentally Retarded Adults", A.J.M.D., 1961, 66: No. 3.

The Research Program of the Johnstone Center, 1961[1]

Leonard S. Blackman

THE research effort at the Edward R. Johnstone Training and Research Center in Bordentown, New Jersey began in September of 1956 when a Director of Research was appointed to initiate a research program in mental retardation. The Research Department was to be staffed with three Ph.D.'s in the behavioral sciences in addition to the Director. To the best of our knowledge, the organization of a state institution for mildly retarded adolescents with provisions for a sizable research staff whose sole responsibility was the planning and conduct of research was a unique venture, both by the State Legislature and officials of the Department of Institutions and Agencies, in establishing research as a legitimate, full-time objective of a state institutional operation. In addition to this state supported research core in the behavioral sciences, our table of organization also included provisions for a medical research unit. The program will be expanded to include this unit at such time as current plans for capital construction are realized. Meanwhile, available funds are being used in the training of phe-Ph.D. graduate students who are interested in pursuing careers in research in mental retardation.

We have been able to expand the state supported research staff and program as a result of having been awarded three federal grants. One of these is a three year project, supported by the United States Office of Education, on "The Development and Evaluation of a Curriculum for Educable Mental Retardates Utilizing Self-Instructional Devices or Teaching Machines." A second is a four year grant from the Office of Vocational Rehabilitation concerned with the "Rehabilitation of Mentally Retarded Youth in a State Institution". The third is a one year study, underwritten by the National Institute of Mental Health, of "Curiosity Behavior in Mental Retardates and Normals". As a result of these grants the research staff has grown from four professional full time researchers to thirteen full time researchers and four part-time additions from our service staff.

The remainder of this presentation will be devoted to an overview of the orientation and objectives of the core research staff including a

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brief description of some of the more important studies that have been completed or are in progress. Further details of the federal grant projects will also be discussed to the extent that time limitations permit.

The basic objective of the research at the Johnstone Center has been a better understanding of mental retardation by studying the perceptual and learning characteristics of mentally retarded individuals. Toward this end, the early research at the Johnstone Center investigated the perceptual processes of mentally retarded children as compared to normal children. From the Kohler-Wallach Theory of Neural Satiation (Kohler & Wallach, 1944) which holds that differences in the modifiability of brain functioning may be made manifest in certain perceptual tasks, a series of studies were conducted into certain aspects of visual and kinesthetic perception (Spitz & Blackman, 1958; Spitz & Blackman, 1959; Spitz & Lipman, in press). The general findings of these studies were the presence of significant differences between normal and retarded groups in the degree of distortion observable in visual and kinesthetic modalities after these modalities had been satiated by prolonged exposure to appropriate stimuli. Retardates showed less distortion in these perceptual tasks, thereby demonstrating less "satiability" or less "brain modifiability". Perhaps of equal importance was the finding of significant differences between different groups of retardates. These results suggested that retardates may be subdivided into separate groups composed of more or less "brain modifiable" individuals based on their consistent responses to selected perceptual tasks.

This line of research in the area of neural satiation has also led to a series of experiments (Lipman & Spitz, in press) designed to test the similarity between satiation, as defined by these perceptual operations, and Hull's inhibition constructs. The general import of these studies was to provide strong evidence that satiation measures are related to individual differences in the composition of inhibitory potential (Ir) as measured by motor learning operations. High satiaters, or those who show large perceptual aftereffects, appear to be individuals who also convert Ir to sIr in motor learning tasks under relatively massed schedules. Certainly, the continued study of relationships between perceptually appropriate satiation measures and selected learning tasks would further solidify this important bridge between the extensive bodies of knowledge in perception and learning.

In addition to contributing to theory unification, these findings also point to potentially useful information in establishing appropriate learning environments for mental retardates. Since a retarded population may be characterized as low satiaters, we would also anticipate that they would not convert Ir to sIr in learning tasks, or at least not as readily as relatively high satiating normals. If this is the case, then training implications may be drawn for work-rest schedules in performance tasks with retarded popu-

lations which would emphasize work at the expense of rest without the resulting performance decrements that would be expected in higher satiating normal populations. Perhaps, these findings also provide some scientific support for the commonplace observation that retardates seem to perform well in simple, repetitive motor-type occupations.

A second major research approach was initiated in the area of concept formation. Here, an attempt was made to analyze the process by which both retarded and normal groups form abstractions; i.e., discover the relationship between a set of discrete stimuli or events. Two studies (Griffith & Spitz, 1958; Griffith, Spitz, & Lipman, 1959) examined the ability to abstract a common property from groups of three nouns as related to the way both normal and retarded subjects defined these nouns. For retardates, the results showed that the proportion of successful abstractions increased markedly if they defined at least two out of the three nouns in common with the acceptable abstraction. Equal MA nine year old normals, on the other hand, could achieve successful abstractions even when they defined only one noun in a triad in terms of the acceptable abstraction. This performance suggests a more mature use of mediators on the part of normal subjects in that apparently all associates to the stimulus nouns are being tested for similarity rather than just the immediately available, or most salient ones, as in the case of retardates.

An interesting experimental extension (Griffith, 1960) was conducted to answer the question of whether a threshold number or a constant proportion of nouns in an abstraction set had to be defined in common with an acceptable abstraction for the abstraction to be attained. That is, could retardates find the similarity in any number of nouns as long as a minimum of two of them were defined in terms of the similarity or would the retardate have to define two-thirds of the nouns, regardless of the number in the group, in order to induce the similarity? When the number of nouns in each group was increased to six, it was found that retardates at the lower end of the educable range must define a constant proportion of the presented nouns, at or near the obtained value of two-thirds, in common with an acceptable abstraction, to perform well on the abstraction task. In short, the number of words to be defined in common with the abstraction moved from two to four when the stimulus word list was lengthened from three to six. The results obtained from retardates at the upper end of the educable range supported neither the threshhold nor the constant proportion hypothesis. Rather, it appeared that abstraction ability for this group was a linearly increasing function of words defined in common with the abstraction.

The direction of research aimed at testing the feasibility of "concept training" for mental retardates who appear unable to match anything but immediately elicited associates will vary depending upon assumptions made

as to whether the disability is a reversible one. If the retardate is considered constitutionally incapable of "sliding down" associate hierarchies, and the attainment of abstractions for this group is considered to be dependent only on the immediate availability of appropriate mediators, then it should be possible to increase abstraction ability by "training up" appropriate associates to words to be grouped. A recent study by Miller and Griffith (1960), designed to test this possibility, discovered that the general elictation of associates during the training sessions, whether socially reinforced or not, did result in reliable improvements in overall abstraction scores. This improvement was specific to the abstraction items involved in the training and did not generalize to other items.

This approach to training is cumbersome and inflexible, however, since in a complex world mediators appropriate to a stimulus which appears in one abstraction grouping are inappropriate when the same stimulus appears in another grouping. It would appear to be a formidable task, indeed, to reinforce different sets of relevant mediators for each abstraction context in which a significant stimulus might possibly occur.

The second research direction in concept training assumes that the use of all mediators in an abstraction task, not just the immediately salient ones, is a cognitive strategy which is trainable. This would involve extensive experiences in which the elicitation and matching of associates in a wide variety of abstraction settings would be encouraged.

Of course, it would be possible to avoid making any assumptions if research were designed to test the competing hypotheses that the most efficient method of improving abstraction ability in mental retardates, if indeed this is possible, is (1) the training of appropriate mediators for a finite and inflexible set of concept structures or (2) the training of appropriate strategies for developing concepts to meet the day-to-day needs for stimulus categorization.

The Teaching Machine Project is now in its tenth month of operation. This project has, as its basic objective, the development of devices and programs for teaching primary language and arithmetic skills to mentally retarded adolescents. In broad outline, the project is exploring the following at both a theoretical and practical level:

(1) the best ways of programming school material for self instructional devices.

(2) the most effective ways of developing devices in terms of modes of stimulus presentation and types of responses made available to the learner.

(3) the integration of these devices and programs into a curriculum for educable mental retardates.

Some of the specific studies presently underway are concerned with:

(1) the effects of different training techniques on long term retention.

(2) the selection and evaluation of training techniques designed to minimize proactive interference.

(3) studies of what discriminations must have been made for a subject to say a word when shown the printed word.

(4) the effects of alphabet knowledge on the learning of new words.

(5) the investigation of several hypotheses predicting differences in learning rate among subjects.

(6) evaluating learning and retention in limited numbers of trials.

(7) the value of readiness tasks as a preface to training with words and letters.

(8) the relative transfer of training subjects to associate letters and letter sounds, letters and letter names, or printed words and their sound on the subsequent learning and retention of a new list of words.

(9) the relative efficiency of training subjects to hear a word and choose the same printed word or see a word and choose the same acoustical word.

It seemed to us in initiating this project that the development of self-instructional devices represents, to date, the most direct and controlled application of learning theory principles to instructional techniques. Hopefully, both publishers and professionals in this area can restrain marketing impulses until more research has been forthcoming.

The "curiosity behavior" study being supported by N. I. M. H. is designed to investigate some determinants of perceptual curiosity, as defined by Berlyne, in mentally retarded subjects, normals of the same mental age, and normals of the same chronological age. The two most prominent variables in the experimental model for investigating perceptual curiosity behavior are felt to be stimulus complexity and stimulus novelty. One of the experimental hypotheses is that retarded subjects, rather than being aroused by complexity and acting towards the resolution of this drive, are inclined to avoid relatively complex objects and to seek novelty mainly in contexts that are uninteresting with regard to their problem solving implications.

Assuming that such an aversion to complexity is found in retardates, the study will also explore whether it is possible, through training, to modify such an aversion, and create instead a positive regard for complexity. Of course, the implication is that retarded individuals can be trained to be curious about the more complex components of their environment and can be motivated to approach problems positively.

The intent of the study supported by O. V. R., now going into its third year, is to explore the problem of how to assess and predict the retardate's potential to profit from training programs and to achieve satisfactory post-training vocational adjustment. To this end, the research program is attempting to develop a reliable and valid battery of psychological, pre-vocational, and vocational measures for predicting vocational success against a background of a comprehensive vocational rehabilitation program for mentally retarded youth.

There are two additional objectives to this Project. One is evaluating the effect of group counseling on vocational achievement. The second is the development of a picture test of the vocational interest and sophistication of mentally retarded youth (VISA). Vocational interest is defined as the degree to which an individual is favorably inclined toward performing the tasks involved in a particular occupational category. Vocational sophistication is defined as the extent to which an individual understands what is involved, in terms of actual tasks and work conditions, in a particular occupational category.

Pictures showing an individual doing a certain job are presented to the subject who is then asked whether or not he would like to do that job. The jobs depicted are representative of the following job families in the form for males: construction and maintenance, laundry, farm and grounds, food service, business and clerical, auto service, and light industry. The female form of the test is based on the same job families except that farm and grounds and auto service are omitted and domestic work is included. In addition to the job families, five additional factors determining job preference are built into the test. These include whether the job is indoors or outdoors, heavy or light, involves working alone or in a group, being supervised or being unsupervised, and working with the same sex as opposed to working with the opposite sex.

To sum up, while the original core of Johnstone's Research Department will continue to study basic psychological processes in mental retardation, it is hoped that continued federal grant support will permit us to evaluate rehabilitation, training, and management programs derived from the findings of the basic research program.

References

Griffith, B. C. The use of verbal mediators in concept attainment by retarded subjects at different intelligence levels. *Child Development,* 1960, 31, 633-641.

Griffith, B. C., & Spitz, H. H. Some relationships between abstraction and word meaning in retarded adolescents. *Amer. J. ment. Defic.,* 1958, *63,* 247-251.

Griffith, B. C., Spitz, H. H., & Lipman, R. S. Verbal mediation and concept formation in retarded and normal subjects. *J. exp. Psychol.,* 1959, *58,* 247-251.

Kohler, W., & Wallach, H. Figural after-effects: An investigation of visual processes. *Proc. Amer. phil. Soc.,* 1944, *88,* 269-357.

Lipman, R. S., & Spitz, H. H. The relationship between kinesthetic satiation and inhibition in rotary pursuit performance. *J. exp. Psychol.,* in press.

Miller, M. B., & Griffith, B. C. The effects of training verbal associates on the performance of retarded subjects at a conceptual task. *Amer. J. ment. Defic.,* 1961, *66,* 270-276.

Spitz, H. H., & Blackman, L. S. The Mueller-Lyer illusion in retardates and normals. *Percept. mot. Skills,* 1958, *8,* 219-225.

Spitz, H. H., & Blackman, L. S. A comparison of mental retardates and normals on visual figural aftereffects and reversible figures. *J. abn. soc. Psychol.,* 1959, *58,* 105-110.

Spitz, H. H., & Lipman, R. S. A comparison of mental retardates and normals on kinesthetic figural aftereffects. *J. abn. soc. Psychol.,* in press.

The Research Program of The Training School at Vineland[1]

Johs. Clause

BEFORE describing our program, I would like to acknowledge th contribution to the program by my two principle co-workers Dr. Sheldon Rosenberg, and Rathe Karrer. I think it will be clea that I am not describing a one man show, and that I am talking here onl as a representative of the group.

I would like also to mention briefly some of the assumptions o positions which form the foundation of our program. (1) We have chose to question the adequacy of the traditional division of mentally deficient into I.Q., etiological and/or clinical categories. When the term organics, fo instance, includes so many different conditions, is there any reason t expect that individuals in this category would exhibit uniform behavioral manifestations? It is our position that subdivision of these overall categories may be defined. (2) Since mental deficiency is the end product of a wid variety of causes, we believe that one promising approach to the field is t develop an assessment program of deficient children which includes a number of different disciplines such as clinical psychology, psychiatry, experimental psychology, neurology, neurophysiology and biochemistry. We believe that there is promise in studying constellation of impaired and intact functions as a supplement to etiological classification or diagnostic efforts. From a practical point of view it is our contention that, since mental deficiency only to a very limited degree is amenable to treatment, detailed information is necessary in order to set up the best possible training program for the individual. We have not chosen the multidisciplinary approach because we think it is the only possible one. We don't know if it is the best one, but we think it has promise.

We believe in addition that a population of retarded children, particularly of the type that we find in a private institution like ours, is a unique and neglected source of information about the relationship between CNS pathology and behavioral manifestations. Finally, we believe that findings from research in mental deficiency ultimately will have just as much significance for understanding the normal organism as it will have to eliminate mental deficiency, alleviate symptoms or foster development.

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On the behavioral side, the model is clearly a factor analytical one. On the independent variable side, we hope to manipulate both organismic and experimental variables.

A research program based on these assumptions is not without ambitions. It takes, of course, time to develop, and much of our program is "a plan of future procedure." But we have made a few strides in the direction.

We are currently engaged in two projects. One is an investigation of electrical phosphenes. An alternating or intermittent electrical current applied to electrodes across the eye produces a sensation of flickering light. This is a visual sensation brought about by direct stimulation of neural structures, by-passing the photochemical processes of the visual receptors. One intriguing problem here is if the threshold value of the stimulating current is an indicator of the excitability of the structures at the site of stimulation, or if it in a more general way indicates excitability of the CNS. We have found that phosphene thresholds are significantly higher in mentally deficient children than in normal children of the same age range. Theoretically, a high threshold may be the result of either faster nerve accomodation or decreased nerve excitability. Presently there is more reason to favor the latter but the problem can be subjected to direct test. We have made considerable effort to relate the phosphene threshold to better understood functions or abilities, but the only positive relation to date is a negative relationship to per cent alpha. This does point to the central structures as determining factors of the phosphene threshold, but this needs to be verified through continued investigation.

A second study is the Ability Structure Project. In this project we have administered a battery of 34 tests including tests of sensory, motor, perceptual and complex mental functions to 300 mentally retarded and 100 normal subjects. Originally the battery gave us more than 100 scores which have been scaled down to 55. The 300 deficient subjects are divided into three age groups, one 8-10 year, one 12-15 and one 20–24. In each of these groups the composition with regard to etiological classification is reasonably homogeneous. In addition to the psychological tests we have neurological examination and EEG, obtained approximately at the time of testing, and medical and family history. It has taken us four years to collect these data. The data are now on IBM cards, distributions have been plotted and reliabilities computed and we are ready for the high speed computer. The purpose of this study is 1. to try to define subgroups among the mentally deficients on the basis of individual patterns of abilities (constellation of impaired and intact functions); 2. To study the developmental trend of the various functions through the three age groups of deficient subjects, and 3. To investigate the relationship between deviant biological functions and behavioral manifestations.

To take the edge of the impression that we are preoccupied with psychophysiological problems, I would like to mention that Dr. Rosenberg is investigating distractability in an incidental learning situation and perseveration in organic retardates. More specifically he is investigating search behavior in retardates as a function of inspection interval and I.Q. For similar objectives he is using a two choice probability learning situation, a card sorting task and a complex conceptual learning task.

We are now preparing for an investigation of autonomic functions in mentally deficient children. In addition to the traditional relationships between emotional states and autonomic functions there seems to be growing evidence for the role of the autonomic nervous system in the self-regulating mechanisms of the organism and for the relationship to cortical activity and to somatic reactivity and response pattern. Our experimental design attempts to incorporate the essential characteristics of the best known studies in the field such as autonomic balance a la Wenger, idiosyncratic patterns and spontaneous autonomic activity a la Lacey, sensory stimulation a la Davis and certain aspects of the so called orienting reflex a la Luria. We are planning to use six automic variables, and these will be recorded during rest, during sensory stimulation and physiological stress. The subjects in this study will also be subjected to an abbreviated version of The Ability Structure battery, and again a detailed neurological examination including EEG. The purpose is to study the relationship between degree and type of brain damage and autonomic functions, to study constellation of impaired and intact functions in a continued attempt of defining subgroups on a functional basis, and to test some aspects of the hypothesis which relates autonomic functions to cortical and somatic activity.

For some time we have been striving toward the establishment of a biochemistry laboratory. Recently, we were so fortunate as to receive a grant from the Gustavus and Louise Pfeiffer Research Foundation for this purpose. Since we have not yet staffed this division of our research department, it is premature to discuss the particular problems that we will be working with. We are looking forward to combined efforts with regard to biochemical and psychological aspects of autonomic functions. The biochemistry program will thus be linked to the autonomic project, which in turn is linked to The Ability Structure Project and to the Phosphene studies. We are hoping that these "old" projects by then are considerably streamlined so that the time it takes to process a single individual will not be unreasonably long. We also hope that we don't get hopelessly entangled in contradicting findings and impenetrable complexities. This of course, is the danger of the approach we have chosen.

As was indicated in the beginning, part of this program is a plan of future procedure. We have some ideas about other things we would like to do, but that is too nebulus to discuss on this occasion. Furthermore, the results of the present projects will to a large extent, determine our future plans.

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